



DoD Executive Agent

Office of the
Assistant Secretary
of the Army
(Installations and
Environment)

NDCEE

National Defense Center for Energy and Environment

Use of Technology for More Efficient Waste Management

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The NDCEE is operated by:  *Concurrent Technologies Corporation*

Technology Transition – Supporting DoD Readiness, Sustainability, and the Warfighter

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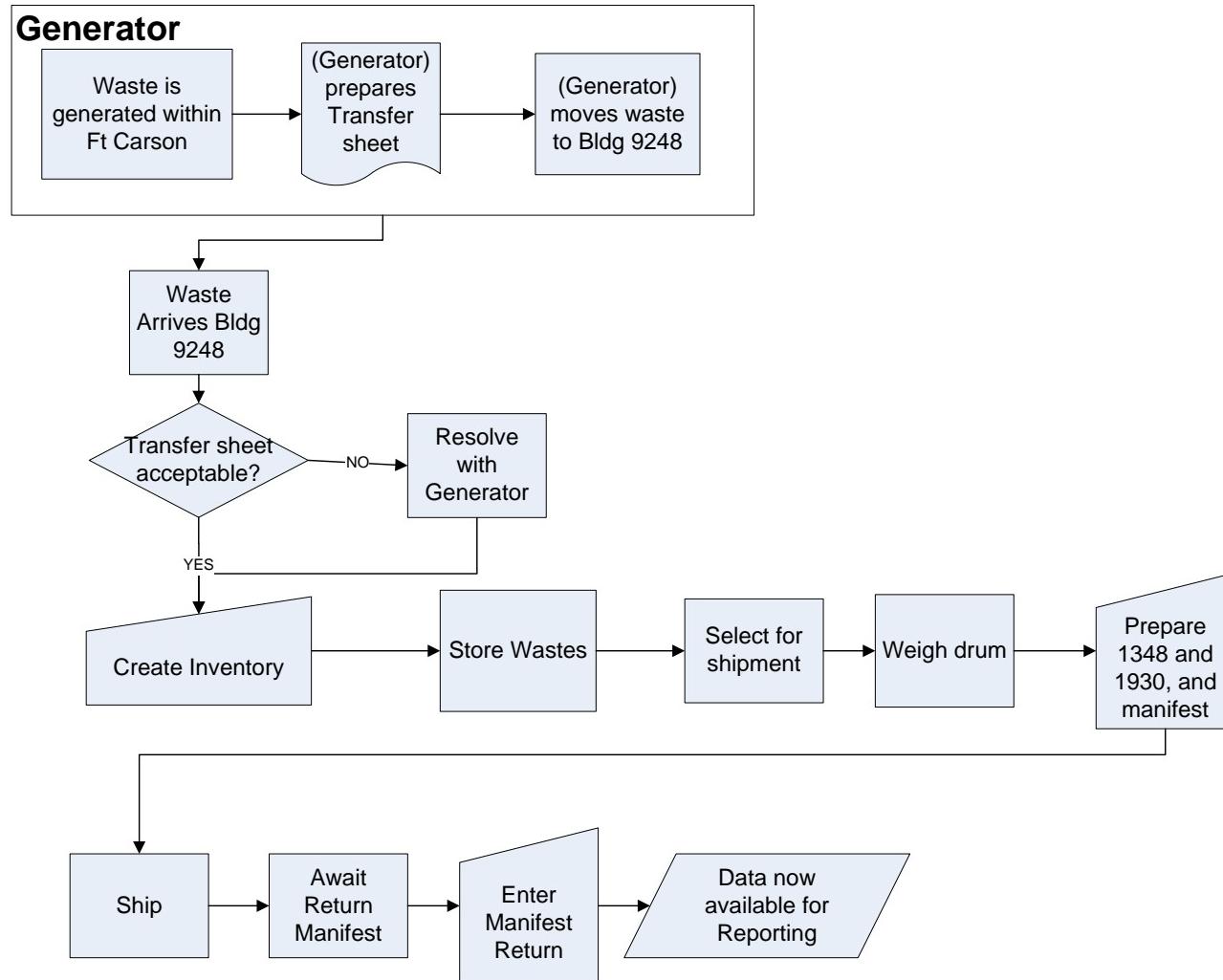
Overview

- Waste Management at Ft. Carson
- Software tracking system
- Tracking system benefits

Waste Management at Ft. Carson

- 220 square mile base
- Over 80 units or buildings that may generate waste
- Over 80 Manifests in 2008
- Over 30 tons hazardous and non-hazardous wastes
- Ambitious Pollution Prevention Goals

Waste Management Business Process at Ft Carson (using software)



Ft. Carson Waste Reduction Goals

- Reduce Hazardous Waste disposal 30% by 2012
- Eliminate Hazardous Waste by 2027

Waste Management Software System at Ft. Carson

- Starting in 2006, Ft. Carson began to use Enviance Waste Manager System
- Major Purposes:
 - Streamline operations
 - Improve accuracy
 - Provide basis for reduction

System Models

- Fort Carson
 - The Mountain Post
 - Department of the Army - DECAM Ft. Ca
 - _Building 0214
 - _Building 7500
 - _Building 8000
 - _Building 9245 (UWSF)
 - _Building 9248 (HWSF)
 - _90 Day Storage Area
 - _90 Day_Lock-1
 - _90 Day_Lock-2
 - _90 Day_Lock-3
 - _90 Day_Lock-4
 - _90 Day_Lock-5
 - _90 Day_Lock-6
 - _90 Day_Temp-1
 - _90 Day_Temp-10
 - _90 Day_Temp-2
 - _90 Day_Temp-3
 - _90 Day_Temp-4
 - _90 Day_Temp-5
 - _90 Day_Temp-6
 - _90 Day_Temp-7
 - _90 Day_Temp-8
 - _90 Day_Temp-9
 - _IDW
 - _IDW_Lock-5
 - _IDW_Lock-6
 - _IDW_Outside
 - _TSDF
 - _TSDF_Bay I
 - _TSDF_Bay II
 - _TSDF_Bay III
 - _TSDF_Bay IV
 - _IDW
 - _IDW_Lock-5
 - _IDW_Lock-6
 - _IDW_Outside
 - _TSDF
 - _TSDF_Bay I
 - _TSDF_Bay II
 - _TSDF_Bay III
 - _TSDF_Bay IV

Profile Manager

EDIT PROFILE

Main | Constituents | Characteristics | Waste Codes | Shipping Information | Land Ban | Regulatory

* Required fields

* Profile number:	* Start date:	* Weight UOM		
W81THB-00108	1.00 8/31/2006	Pound		
Alternate number:	Inactive date:	* Volume UOM		
6810-00-CHLOROFORM		Gallon		
Tie code:	* Type of waste:	Waste Origin:		
	Hazardous Waste	Unserviceable/Expired		
Generic Description:				
CHLOROFORM				
Status:				
<input type="radio"/> Pending Authorization <input checked="" type="radio"/> Active/Authorized <input type="radio"/> Inactive <input type="radio"/> Archived				
* Generator(s)				
<input type="checkbox"/> Corporate wide or Select at least one Generator Item:				
#	Alternate ID	Name	Generation Status Name	Generator/TSDF
<input type="checkbox"/> ***DECAM***	Department of the Army - DECAM Ft. Carson	LQG	True	
<input type="button" value="Associate"/> <input type="button" value="Select All"/> <input type="button" value="Remove"/>				
Approval(s)				
#	Number	TSDF Name	Approval Status	Sample Status
<input type="checkbox"/>	975100	Clean Harbors Aragonite, LLC	Approved/Active	Approved/Active
<input type="checkbox"/>	9101CC	Texas Ecologists Inc.	Inactive	Approved/Active
<input type="button" value="Associate"/> <input type="button" value="Select All"/> <input type="button" value="Remove"/> <input type="button" value="Reset Primary"/>				

Enviance Waste Manager System

- Web-based
- Comprehensive
- Flexible and configurable
- Military capable

powered by: 

View Data Manager

VIEW CONTAINER DATA

Alternate Number	Number	Days On Site	Status	Weight	Weight UOM	Storage Date	Profile Number	Profile Description	Accumula
225A	8177-4000A	111	In Inventory	33.0	Pound	6/25/2008	W81THB-010	Used/Spent Thinner (BLDG 8000)	6/25/2008
225B	8177-4000B	111	In Inventory	30.0	Pound	6/25/2008	W81THB-010	Used/Spent Thinner (BLDG 8000)	6/25/2008
308	8225-4000	63	In Inventory	0.0	Pound	8/12/2008	W81THB-015	NiCad Battery	8/12/2008

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System Models

- Calendar
- Desktop
- Profile
- Help
- Log Out
- Message Center
- Task Manager
- Template Manager
- Company Manager
- Waste Detail Manager
- Shipment Manager
- Report Manager
- Document Manager
- Admin/Security Manager

Fort Carson

- The Mountain Post
- Department of the Army - DEC
- _Building 0214
- _Building 7500
- _Building 8000
- _Building 9245 (UWSF)
- _Building 9248 (HWSF)
- A _90 Day Storage Area
- A _90 Day_Lock-1
- A _90 Day_Lock-2
- A _90 Day_Lock-3
- A _90 Day_Lock-4

Waste Management System

- Tracks waste storage (containers)
- Tracks storage times
- Provides easy method for auditing container status
- Ties containers back to their generating unit
- Allows easy entry of relevant Turn-in sheet data
- Tracks types of wastes and quantity

System Models

Alternate Number	Number	Days On Site	Status	Weight	Weight UOM	Storage Date	Profile Number	Profile Description	Accumu
003	9007-4000	81	In Staging	379.0	Pound	1/7/2009	W81THB-024	Solvent Distillation Still Bottoms (Bldg 3711)	1/7/2009
005	9008-4000	80	In Staging	230.0	Pound	1/8/2009	W81THB-023	Used Methanol (Hospital Lab)	1/8/2009
006	9008-4001	80	In Staging	83.0	Pound	1/8/2009	W81THB-105	Xylene Waste (Hospital Lab)	1/8/2009
020	9020-4000	68	In Inventory	207.0	Pound	1/20/2009	W81THB-012	Heptane (BLDG 8000)	1/20/2009
032	9030-4000	58	In Inventory	9.0	Pound	1/30/2009	W81THB-00004	Used Solvents (STP) Lab	1/30/2009
040	9043-4000	45	In Inventory	45.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009
041	9043-4001	45	In Inventory	45.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009
042	9043-4002	45	In Inventory	43.0	Pound	2/12/2009	W81THB-100	Used Titrator from AOAP Lab	2/12/2009

Waste Container Tracking: Optimized for Ft. Carson and Department of Defense Activity Address Code (DoDAAC)

Custom Fields

Container

Generating Building and Unit
Bldg 8000 DOL/AOAP Lab

Alternate POC
APC
B101

Chain of Command Battalion/Civilian Division Level
AOAP Lab or

Chain of Command Brigade/Directorate/Tenant Level
Directorate of Log or

Chain of Command Major Command/Garrison Level
Garrison or

Generating Building
Bldg 8000

Primary POC
Tom Trowell

Generating Unit
AOAP Lab

Primary POC Phone Number
526-4991

Chain of Command Company/Branch Level
-- SELECT -- or

DODAAC
W90AWB

- Custom fields to customize tracking of generating unit and other data from the Turn-in sheet *for each container*
- Similar approach to track National Stock Numbers (NSN), Contract Line Item Numbers (CLIN) and related data on each waste profile
- Allows waste to be tracked back to generating unit
- Improves data consistency and control of CLIN and other important data

Interacting with Defense Reutilization and Marketing Office (DRMO)

Batch Manager

EDIT BATCH

* Number 275
 * Generator Department of the Army - DECAM Ft. Carson
 Group Reference -- SELECT -- or [Select](#)
 * Required Fields

Created Date 1/9/2009 2:48 PM
 Created By Cavanaugh, Robert

Select	Number	Profile Number	Parent Name	Type	Container Type	Waste Type
<input type="checkbox"/>	4132-980-PPE	W81THB-390 (version 1.00)	None given	Container	DM	Other
<input type="checkbox"/>	9079-4001	W81THB-023 (version 1.07)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste
<input type="checkbox"/>	9056-4001	W81THB-109 (version 1.00)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste
<input type="checkbox"/>	9030-4000	W81THB-00004 (version 1.03)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DF	Hazardous Waste
<input type="checkbox"/>	9043-4002	W81THB-100 (version 1.00)	_Building 9248 (HWSF)_90 Day_Lock-1	Container	DM	Hazardous Waste

* One or more items associated to batch are shipped

[Associate Container](#) [Associate Equipment](#) [Select All](#) [Remove](#)

Apply selected action after save

[Generate 1348 and 1930](#)

[Save](#) [Cancel](#)

- Group one or more containers
- System creates DRMS-1930 and DD-1348-1A forms required by DRMO
- User prints the 1348 and 1930 reports for DRMO
- DRMO arranges the shipment and prepares the manifest
- Track the manifest in the system

DRMS-1930 and DD-1348-1A Forms

- Formerly hand-written or manually created
- Now automated

1930 and 1348 Report	
HAZARDOUS WASTE PROFILE SHEET	
PART I	
A. General information	Waste profile no.
1. Generator's name <input type="text" value="Department of the Army - DECAM Ft. Carson"/>	<input type="text" value="W81THB-390"/>
2. Facility address <input type="text" value="1638 Elwell Street Bldg 6236 Fort Carson CO"/>	5. Zip code <input type="text" value="80913"/>
3. Generator USEPA ID <input type="text" value="C022100201"/>	
4. Generator state ID <input type="text"/>	
6. Technical contact <input type="text"/>	7. Title <input type="text"/>
Phone <input type="text"/>	
B. 1. Name of waste <input type="text" value="IDW Non-Hazardous"/>	
2. USEPA /or /State waste codes <input type="text"/>	
3. Process generating waste <input type="text" value="IDW"/>	
4. Projected annual volume/units <input type="text"/>	5. Mode of collection <input type="text" value="DF"/>
6. Is this waste a dioxin listed waste as defined in 40 CFR 261.31? (e.g., F020, F021, F022, F023, F026, F027 or F028)	
<input type="radio"/> Yes <input checked="" type="radio"/> No	
7. Is this waste restricted from land disposal? (40 CFR 268)	
<input type="radio"/> Yes <input checked="" type="radio"/> No	

Shipment Tracking

Shipment

SHIPMENT RECORD: Main

Main || Manifest Information || Total Costs || Associations

Next || Save || Cancel

* Required field.

General Information

Shipment Status: on hold

* Shipment Number: DO014 Date/Time Shipped: 2/24/2009 12:00 AM Type of Shipment: Hazardous

Same as UHM No. On Hold No Shipment return

* Generator

Preprinted Details

Name: Department of the Army - DECAM Ft. Carson

Street: 1638 Elwell Street

Bldg 6236

City: Fort Carson State: CO ZIP: 80913

Line Items

	DOT Shipping Description	Shipment By	Number of Containers	Container Type	Quantity	UOM	Line #	
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	610	Pound	1	<input type="button" value="Print Labels"/>
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	601	Pound	2	<input type="button" value="Print Labels"/>
<input type="checkbox"/>	RQ, UN3432, Polychlorinated biphenyls, solid, 9, PGII	Container	1	DF	603	Pound	3	<input type="button" value="Print Labels"/>

- Tracks shipments
- Associates containers with shipments
- Tracks Manifest returns
- System notifies generator if manifest not returned within 30 days
- Can create exception reports for un-returned manifests

Reporting

- Biennial
- User defined reports
- Custom reports
- Shipment reports
- Numerous standard and customized reports available
- Report format in HTML or Excel
- Daily Inventory Reports for Fire Department

Report Manager	
Approval Report	Custom Report
Audit Report	Annual Report
Batch Report	Biennial Report
Company Report	PCB Annual Document Report
Destruction Report	Received PCB or PCB Items
Disposal Report	Shipped PCB or PCB Items
Generator Report	Schedule B - Fees Summary Sheet
Inventory Report	Schedule G - Generator Fee Schedule
Profile Report	Hazardous Waste Generator Fee Prepayment
Sample Report	Hazardous Waste Generator Fee Return
Security Report	Tax Report
Spill Report	Waste Reduction - SPR (SB14) Report
Tank Report	Waste Reduction Goal Report
Task Report	
Waste Report	
Shipment Report	
Shipment Receiving Report	
Shipment Return Report	
Custom Field Report	

Financial Accountability to Generators

- System allows waste to be tracked back to Generating Unit
- Allows for charge-back to the generator
- **Provides an incentive for the generator to reduce waste generation (for those required to pay for disposal)**

Date Placed	Generating Unit	Generating Profile Description	Pounds	Profile EPA CLIN	Disposal Cost Per Pound	Disposal Cost
1/6/2009	DPW-ENV	Bldg 9248 Fluorescent Lamps	538	9800UL	1.51	812.38
1/6/2009	DPW-ENV	Bldg 9248 PCB Articles Ballasts	610	PCB 1 7014AA	1.25	762.5
1/7/2009	DPW-ENV	Bldg 9248 Solvent Distillation Still Bottles	379	D001 910200	1.19	451.01
1/8/2009	MEDDAC-2 (lab)	Bldg 7500 Used Methanol (Hospital Lab)	230	F003,D001 950100	1.75	402.5
1/8/2009	MEDDAC-2 (lab)	Bldg 7500 Xylene Waste (Hospital Lab)	83	F003,D001 950100	1.75	145.25
1/16/2009	DPW-ENV	Bldg 9248 Fluorescent Lamps	539	9800UL	1.51	813.89
1/20/2009	AOAP Lab	Bldg 8000 Heptane (BLDG 8000)	207	D001,D008 910200	1.19	246.33
1/20/2009	DPW-ENV	Bldg 9248 PCB Articles Ballasts	801	PCB 1 7014AA	1.25	751.25
1/21/2009	FLRC	Bldg 0749 Silicon Brake Fluid	254	N001 990200	0.99	251.46
1/21/2009	FLRC	Bldg 0749 Used Grease	429	N001 990400	0.94	403.26
1/21/2009	K/DOL MAINT PAINT SH	Bldg 8000 Used Grease	373	N001 990400	0.94	350.62
1/21/2009	K/DOL MAINT PAINT SH	Bldg 8000 Used Grease	441	N001 990400	0.94	414.54
1/21/2009	K/DOL MAINT PAINT SH	Bldg 8000 Used Grease	371	N001 990400	0.94	348.74
1/23/2009	MEDDAC-1 (warehouse)	Bldg 7500 Used fixer (Hospital)	250	D011 940200	0.96	240
1/29/2009	DPW-ENV	Bldg 9248 PCB Articles Ballasts	603	PCB 1 7014AA	1.25	753.75
1/30/2009	FCSS	Bldg 3900 COD Digestion Solution	9	D011,D002,D920100	1.95	17.55
1/30/2009	FCSS	Bldg 3900 Nessler's Reagent (STP LAB)	10	D002,D009 920100	1.95	19.5
1/30/2009	FCSS	Bldg 3900 Used Solvents (STP) Lab	9	F003,D001 950100	1.75	15.75

Benefits of the Software System

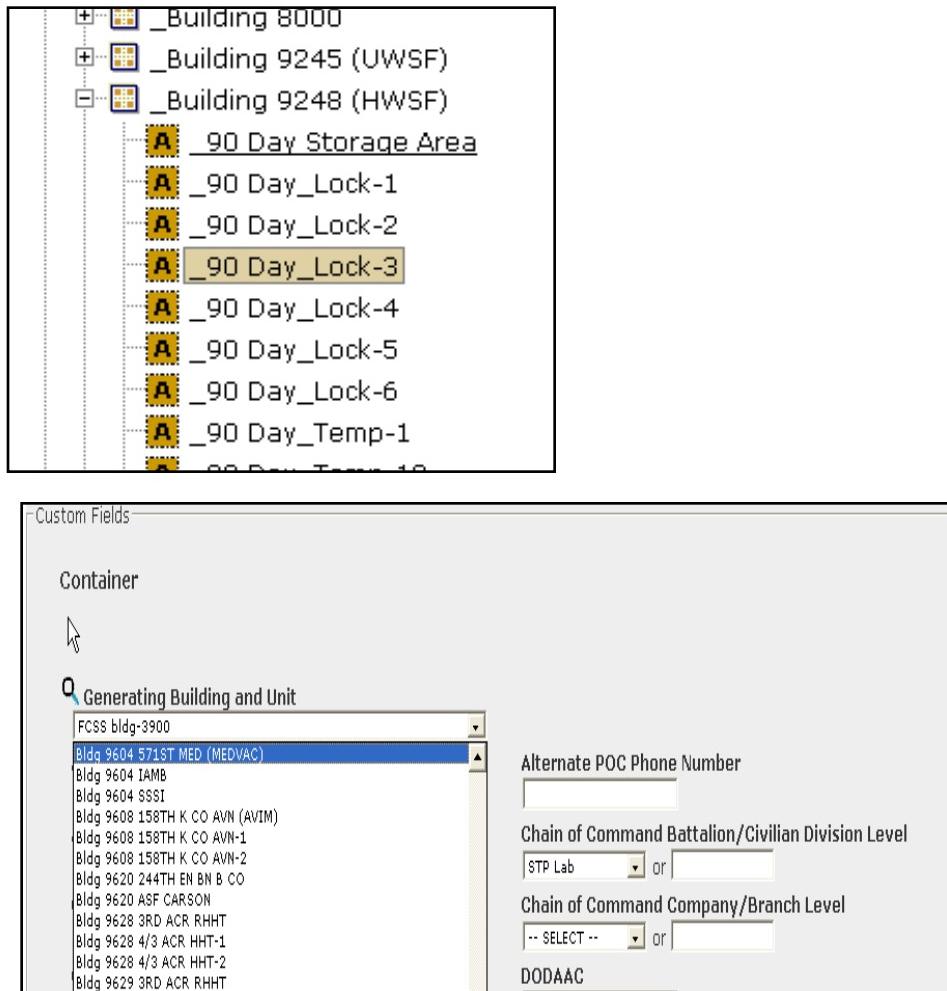
- Reduce risk to the site by improved data quality
- Increased efficiency
- Data to be used to publish progress towards Hazardous Waste reduction goals, and identify challenges in reaching them

Improved Data Quality for Waste Management

- Streamlined profiling reduces the number of waste profiles
 - Automatic generation of 1348 and 1930 reduces data entry errors

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Efficiency Improvements



The screenshot displays two windows from the enviance application:

- Container Tree View:** A tree structure showing storage locations. The root node is '_Building 8000', which contains '_Building 9245 (UWSF)' and '_Building 9248 (HWSF)'. '_Building 9248 (HWSF)' contains several containers labeled with 'A' and a yellow background: '_90 Day Storage Area', '_90 Day_Lock-1', '_90 Day_Lock-2', '_90 Day_Lock-3' (which is selected), '_90 Day_Lock-4', '_90 Day_Lock-5', '_90 Day_Lock-6', and '_90 Day_Temp-1'.
- Code Table Selection:** A window titled 'Generating Building and Unit' showing a dropdown menu of building names. The selected item is 'Bldg 9604 571ST MED (MEDVAC)'. To the right are three dropdown menus for administrative settings: 'Alternate POC Phone Number' (empty), 'Chain of Command Battalion/Civilian Division Level' (set to 'STP Lab'), and 'Chain of Command Company/Branch Level' (set to 'DODAAC').

- Simplified container tracking:
 - Create containers at the main storage location
 - Specify where they are stored using a tree structure
- Allows Administrator access (and control over) code tables
 - Consistency

Efficiency Improvements (cont)

■ Biennial Report:

- Stream-lined creation of Biennial
- Audit report allows for QA of Biennial data

Biennial Report	
Back Cancel	
OMB#: 2050-0024 Expires 11/30/2009	
SEND COMPLETED FORM TO: The Appropriate State or EPA Regional Office.	
United States Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION FORM	
1. Reason for Submittal (See Instructions on page 9) MARK ALL BOX(ES) THAT APPLY	Reason for Submittal:
	<input type="checkbox"/> To provide Initial Notification of Regulated Waste Activity (to obtain an EPA ID Number for hazardous waste, universal waste, or used oil activities) <input type="checkbox"/> To provide Subsequent Notification of Regulated Waste Activity (to update site identification information) <input type="checkbox"/> As a component of a First RCRA Hazardous Waste Part A Permit Application <input type="checkbox"/> As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # _____) <input checked="" type="checkbox"/> As a component of the Hazardous Waste Report
2. Site EPA ID Number (page 10)	EPA ID Number CO2210020150
3. Site Name (page 10)	Name: Department of the Army - DECAM Ft. Carson
4. Site Location Information (page 10)	Street Address: 1638 Elwell Street Bldg 6236 City, Town, or Village: Fort Carson State: CO

Efficiency Improvements (cont)

- Previously, management reports created by paper summary of waste management records
- Now they are automated, and available either as HTML or Excel reports

Facility Name: Department of the Army - DECAM Ft. Carson									
Address: 1638 Elwell Street/Bldg 6236									
EpaID: CO2210020150									
Manifest Doc No.	Line Number	Description-Stream	Profile	EPA Codes	State Codes	Weight (Ton)	Disp Loc	TSDF	TX-Code
002222843	1	IDW PPE (F039)	W81THB-322			0.08	AR	Rineco	
002222843	2	IDW Liquid Purge Water (F039)	W81THB-303			0.02	AR	Rineco	
002222843	3	IDW Liquid Purge Water (D040, F039)	W81THB-305	F002		0.09	AR	Rineco	
004863029	1	PCB Articles Ballasts	W81THB-0001	PCB 1		0.31	LA	Lamp Recyclers of Louisiana (LE)	
004863029	2	PCB Articles Ballasts	W81THB-0001	PCB 1		0.30	LA	Lamp Recyclers of Louisiana (LE)	
004863029	3	PCB Articles Ballasts	W81THB-0001	PCB 1		0.30	LA	Lamp Recyclers of Louisiana (LE)	
004863019	1	Used Solvents (STP) Lab	W81THB-0004	D001		0.01	KY	American Environmental Services, INC. (KY)	
004863019	2	Chemical residue from aerosol cans	W81THB-109	D039, D040, D001, D035		0.20	KY	American Environmental Services, INC. (KY)	
004863019	3	Used Titrator from AOAP Lab	W81THB-100	D022, D001, D018, D010		0.07	KY	American Environmental Services, INC. (KY)	
004863019	4	COD Digestion Solution	W81THB-008	D011, D002, D009, D007		0.02	KY	American Environmental Services, INC. (KY)	
004863019	5	Nesslers Reagent (STP LAB)	W81THB-029	D002, D009		0.02	KY	American Environmental Services, INC. (KY)	
004863019	6	Dust Filters (Bulb Crusher)	W81THB-025	D009		0.01	KY	American Environmental Services, INC. (KY)	
004863019	7	Used fixer (Hospital)	W81THB-102	D011		0.55	KY	American Environmental Services, INC. (KY)	

Waste Reduction Goals

■ Data needed to drive reduction:

- Who generates?
- What is generated?
- How much is generated?
- What are trends in waste generation?

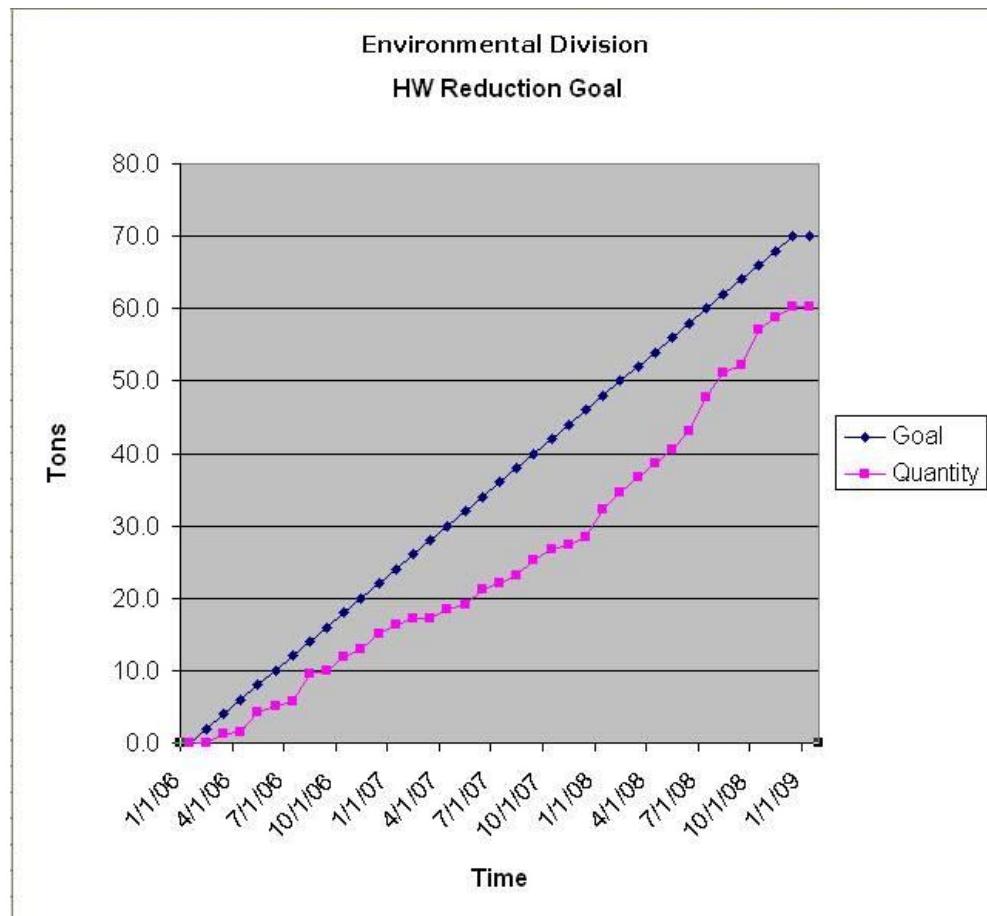
Waste Reduction Goals

- System facilitates tracking of:
 - Source
 - Waste Type
 - Generation frequency

- This data is available:
 - Real-time
 - To all users, as appropriate

Tracking Waste Reduction Trends

- System provides the data necessary to track trends in waste generation
- Can track trends by waste stream, generator or groups of profiles
- Can track trends over different time spans – weeks, months, years



Summary

- Enviance Waste Management system used to track data required by Ft. Carson waste management
- Custom configured to meet Ft. Carson needs
- Automates reports and data required by DRMO
- Reduces duplicate entry
- Reduces Biennial reporting time
- Increases data accuracy and consistency
- Allows for trending and waste reduction reporting
- Secure and controlled access for users (based on their job functions, authority, etc.)

Contact Information

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